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**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations*

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(54) Title: **TRANSGENIC AVES PRODUCING HUMAN POLYCLONAL ANTIBODIES**

(57) Abstract: Human antibodies are produced in transgenic chickens having functional genetic components of the human immune system stably integrated in the genome. Techniques are described to integrate unrearranged human heavy and light chain immunoglobulin loci into the genome of the transgenic chicken. The functional description of the endogenous immunoglobulin loci yields an animal whose antibody repertoire in response to antigen is fully human. In the preferred embodiment, the human immunoglobulin locus is at least as large as the native human locus and exhibits functional class switching to yield IgG isotype antibodies. In addition to monoclonal antibodies secreted from immortalized B cell populations, polyclonal antibodies may be obtained from eggs laid by the transgenic chickens of the invention.

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/09288

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : A01K 67/00

US CL : 800/19

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 800/19

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Continuation Sheet**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	IVARIE, R. Avian transgenesis progress towards the promise. TRENDS in Biotechnology. January 2003, Vol. 21, No. 1, pages 14-19. See entire document.	1-20
Y	ISHIDA et al. Production of human monoclonal and polyclonal antibodies in transchromo animals. Cloning and Stem Cells. 2002, Vol. 4, No. 1, pages 91-102. See entire document.	1-20
Y	DAVIES et al. Selection of specific phage-display antibodies using libraries derived from chicken immunoglobulin genes. J. Immunol. Methods. 1995, Vol. 186, pages 125-135. See entire document.	1-20
A	MOHAMMED et al. Deposition of genetically engineered human antibodies into the egg yolk of hens. Immunotech. 1998, Vol. 4, pages 115-125. See entire document.	1-20
Y	BEZZUBOVA et al. Gene conversion in the chicken immunoglobulin locus: a paradigm of homologous recombination in higher eukaryotes. Experientia. 1994, Vol. 50, pages 270-276. See entire document.	1-20
Y	US 6,066,778 A (GINSBURG et al.) 23 May 2000. See Examples.	1-20
Y	US 5,939,598 A (KUCHERLAPATI et al.) 17 August 1999. See Examples.	1-20

☒ Further documents are listed in the continuation of Box C.☐ See patent family annex.

\* Special categories of cited documents:

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## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,998,209 A (JOKOBOVITS et al.) 07 December 1999. See Examples.	1-20
Y	US 6,316,600 B1 (MICHAEL et al.) 13 November 2001. See Examples.	1-20
Y	US 6,143,559 A (MICHAEL et al.) 07 November 2000. See Examples.	1-20
Y	PAIN et al. Long-term in vitro culture and characterisation of avian embryonic stem cells with multiple morphogenetic potentialities. Development. 1996, Vol. 122, pages 2339-2348. See entire document.	1-20

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**Continuation of B. FIELDS SEARCHED Item 3:**  
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